TESTIMONY IN OPPOSITION TO SB 1085)

An Act Concerning the Legalization of the Retail Sale and Possession of Cannabis and Concerning Erasure of Criminal Records in the Case of Convictions Based on the Possession of a Small Amount of Cannabis

We are a consortium of physicians representing The Connecticut Chapter of the Society of Addiction Medicine and The Connecticut Psychiatric Society, as well as individual physicians and researchers, including addiction specialists who perform research at Yale University and/or provide clinical services at Yale University-affiliated settings. Please note that we provide this statement as a consortium of organizations and individual physicians, and not as a position statement of Yale University or its affiliates.

At this time, there is insufficient evidence regarding the safety of marijuana for us within the medical community to fully back legalization of recreational marijuana. Therefore, the medical community would caution legislators against full legalization until further research is completed.

We hold this perspective because marijuana and cannabis products are largely uncontrolled, unregulated herbal products that are either smoked or ingested, with varying psychoactive content; these products lack rigorous, controlled studies assessing safety and efficacy. Furthermore, given the known abuse liability of marijuana, a strong association of cannabis use with the onset of psychiatric disorders, high levels of contaminants, and the known respiratory toxicity of smoked or otherwise inhaled marijuana, the risks associated with use of uncontrolled marijuana supplies is not yet outweighed by any scientific demonstration of safety or benefits.

However, in the event that you move this legislation forward, we recommend utilizing harm reduction efforts to make sure this is done in the safest way for the people of Connecticut. Given the general lack of an evidence base for the safety of recreational marijuana use, we suggest the best practice would be to learn from other states that have already legalized recreational marijuana. We recommend that special attention be paid to laws that were changed after the initial legalization, in order to identify additional harm reduction measures, and that the CT General Assembly start at the more restrictive end of their practices. Based upon this information and the latest medical research, we present a list of recommended harm reduction measures which are further detailed in the Appendix, below.

Harm Reduction Measures:

- 1) Age restrictions
- 2) Measures to reduce adolescent use
- 3) Responsible use of taxes and licensing fees a "lock box" for all marijuana-related state revenues
- 4) Creation of a Regulatory and Review Board
- 5) Creation of a database of marijuana purchases
- 6) Advertising restrictions
- 7) Packaging and labeling restrictions
- 8) Restrictions on dispensaries and retail marijuana stores
- 9) Regulation on driving
- 10) Possession limits
- 11) Mandatory monitoring of contaminants
- 12) Restrictions on formulations and types of products sold
- 13) Other recommendations
 - -Medical Marijuana: Reconsiderations
 - -Cultivation restrictions
 - -Controlled Substance Monitoring

Thank you for your attention to this important matter. For questions, please contact:

On behalf of the Consortium:
Deepak Cyril D'Souza, MD
Department of Psychiatry, Yale University School of Medicine deepak.dsouza@yale.edu

Sincerely yours,

The Connecticut Marijuana Harm Reduction Consortium

Organizations:

The Connecticut Chapter of the Society of Addiction Medicine

The Connecticut Psychiatric Society

Individuals:

Stephanie Yarnell-Mac Grory, MD, PhD Deepak Cyril D'Souza, MD Ellen Edens, MD, MPE, MA Gabriella Garcia-Vassallo, MD Katherine Kennedy, MD Jessica Chaffkin, MD Robert Werner, MD Robert Rohrbaugh, MD Gail D'Onofrio, MD Flavia DeSouza MD, MHS Falisha Gilman, MD Amalia Londono Tobon, MD Bonny Patel, MD Simha Ravven, MD Rajiv Radhakrishnan, MBBS, MD Nora Proops, MD Ebony Dix, MD Jeanette Tetrault, MD Sheltey Amen, MD, PhD

Ismene Petrakis, MD Bachaar Arnaout, MD Howard Zonana, MD Aaron Alexander-Bloch, MD, PhD Sofia Noori, MD Will Rutland, MD Michael Serynak, MD Melissa Weimer, MD Ayala Danzig, MD Danilo Been Carrasco, MD Francis Adachi, MD Jonathan Craig Allen, MD, FASAM Alice Shen, MD Brady Heward, MD Caroline Falker, MD Caren Teitelbaum, MD Peter Morgan, MD, PhD Muhammad Hassan Majeed, MD Brent Moore, PhD Sara Blaine, PhD Carolyn Sartor, PhD

Appendix: Harm Reduction Measures

Louis Trevisan, MD

1) Age restrictions

- -Marijuana has been legalized for recreational use in 10 states plus the District of Columbia. In each of these places, the purchase was restricted to individuals aged 21 or over.
- -We recommend adopting the age limit to be set at age 25 [given that 1) the brain continues to develop until the age of 25, and 2) neurobiological data suggesting impaired decision making in early adulthood].
 - -The American Psychiatric Association's (APA) position on cannabis is that adolescents and young adults are particularly vulnerable to harm, given the effects of cannabis on brain development. Brain development (particularly the pre-frontal cortex, which is involved in decision making) continues into the early to mid-twenties. The brain's own endocannabinoid system is involved in brain development, and therefore perturbation of the endocannabinoid system by exposure to cannabis/marijuana can alter brain development. Marijuana use within this period can cause important brain functioning impairment, some of which might not be reversible. Therefore, we believe it is best to advocate for the oldest possible age.

2) Measures to reduce adolescent use

- -For biological, psychological, and social reasons, marijuana use among adolescents is particularly harmful and is associated with negative long-term consequences on mental health, education, employment, and carries an increased risk of involvement in the legal system. Therefore, we advocate for measures designed to reduce the use of marijuana in adolescents. As we have already seen with tobacco and alcohol, there is a trickle-down effect to youth with products that are legal.

 -See Section 1 on age restrictions; Marijuana must not be sold to anyone under the age of 25. Per Section 8, a government issued form of identification is required to verify this.
- -See Sections 6-8 regarding advertising, packaging, labeling, and locations of dispensaries and retail marijuana stores. Section 6 defines and forbids activities deemed especially appealing to children.
- -Per Sections 7 and 12, we recommend against the sale of candy(-ies) given the risk of accidental ingestion by children.
- -We recommend that dispensaries and retail marijuana stores must employ only individuals aged 25 or older.
- -We recommend the state dedicate monies to developing and launching a campaign aimed at reducing marijuana use in individuals below the age of 25 years (see Section 3).

3) Responsible Use of Taxes and Licensing Fees

- -We recommend responsible use of funds gathered from the taxation of retail marijuana, application fees, registration fees, and civil violation fines.
 - -It is not possible to be fully aware of the unintended consequences of legalizing marijuana. Therefore, we believe money should be set aside to help address these outcomes and to help our most vulnerable citizens.
- -We recommend a "lock box" of funds to address issues of research, mental health, substance use treatment, prevention, and further harm reduction measures.

 -The state should establish an epidemiological surveillance program to estimate the number of new cases of marijuana-related health consequences including those seeking help for cannabis use disorder, new cases of schizophrenia, new cases of bipolar disorder, etc. Making these data available to the citizens of the state annually.

 -Estimating the number of motor vehicle accidents and fatalities and insurance claims "associated" with marijuana exposure.
- -Other examples could include allocating funds towards:
 - -Effective prevention policies (universal and specific, primary and secondary);
 - -Educational projects targeting marijuana use and educating the public, including targeted education in schools starting in elementary school;
 - -Developing and launching a campaign aimed at reducing marijuana use in youth;
 - -Youth Court and diversionary efforts towards treatment for 1st time, non-violent offenders;
 - -Mental health treatment, alcohol and drug abuse prevention, and early intervention and treatment of Substance Use Disorders;
 - -Mental health disorders, such as psychotic disorders, anxiety, PTSD, and depression, amongst others, are associated with marijuana use; the prevalence and burden related to these disorders could increase with legalization and therefore deserve further funding.
 - -Fund relevant research into areas such as:
 - -Monitoring and measuring the health and safety consequences of policies enacted by other states that legalize cultivation, distribution, and possession of marijuana for medical or recreational use to inform policy in Connecticut.
 - -Identifying the key outcomes related to the health and safety consequences of legalization and the best available measures of these outcomes.

 -Public health issues including, but not limited to: impact on minors, roadway safety, adverse effects of marijuana and likelihood of addiction, monitoring and tracking trends of use amongst individuals in Connecticut, effects of various cannabinoid strains and formulations, and other epidemiological, experimental, and clinical efforts to better understand the effects of legalization of marijuana.
 - -Funding precautionary steps to ameliorate any discovered adverse health and safety consequences.
 - -Establish and maintain a Board (see Section 4) and all costs required for the implementation, administration, and enforcement of the regulations outlined in this document (i.e. program administration and enforcement costs).
- -We also recommend the Board (see Section 4) be involved in decisions around the allocation of funds derived from the sale of retail marijuana products.

- 4) Creation of a review board to regularly review and update policy recommendations and have oversight on "lock box" revenues.
 - -We recommend the creation of a Regulatory and Review Board composed of various stakeholders to include academic, medical, public health, regulatory, and business interests, as well as law enforcement and representatives of the general public who do not directly benefit from the sale of marijuana. This advisory board would be tasked with studying and regulating marijuana in the State of Connecticut. Examples of tasks include: reviewing applications, approving or rejecting applications for licenses and registrations, reviewing contaminant-monitoring scores, reviewing complaints and epidemiological reports, and revoking licenses when needed. This regulatory and review board could also help politicians weigh new and emerging science to ensure the safest practices around marijuana are utilized. -The Regulatory Review Board would also be charged with overseeing the way that marijuana-related state revenues are utilized.

5) Creation of a database of marijuana purchases

- -Of the states that have legalized marijuana, approximately half maintain some form of record of marijuana purchases within their state.
- -We recommend adopting a policy that allows for monitoring of marijuana within the state of Connecticut to include the production from seed to the time of purchase (e.g. all stages from point of production to point of sale). This would best be done through the creation of a database.
 - -We recommend this database be statewide (e.g. not maintained solely within independent dispensaries);
 - -We recommend this database be centrally maintained to ensure that all dispensaries comply with this requirement;
 - -We recommend that access to this dataset should be limited. We do not recommend this information be a matter of public record.
 - -Within this database, we recommend maintaining basic information such as: date of purchase, quantity purchased, and specific identifiers of product purchased (e.g. ID registration of producer, batch and lot numbers), but no information would be retained for individual purchasers.
 - -Information from this database would allow for monitoring of sales patterns to better guide further recommendations as well as allowing for future public health inquiries.
 - -The ability to monitor producer, batch, and lot can help with public health issues that may arise (see Section 11);
 - -For research purposes, it would be good to have point of sale records, as it would allow tracking trends and frequency of purchases, concentrations purchased, etc. These data could be used to create a profile (information on protective and risk factors) as well as the quantity and types of products being consumed by individuals within the State of Connecticut.
 - -This data could be used to obtain crucial information to develop more effective policies and interventions.

Some examples of potential scenarios:

- Should data show that the incidence of first psychotic episode was associated to a specific product or type of products, the finding could be used to develop and promote awareness campaigns on the specific harms of that product, the taxation of that product could be increased, or that specific product could be banned and considered illegal.
- Should data establish that individuals who purchase marijuana products at a certain frequency or more demonstrate functional impairments (e.g. employment, mental health, family, or social problems), one strategy might be to apply an additional tax when individuals reach a certain weekly threshold of marijuana purchases, and harm reduction material and treatment contacts could be provided.

6) Advertising restrictions

- -Restrictions on advertising practices are common in states that have legalized marijuana.
- -We recommend that advertising rules and regulations must comply with existing restrictions already imposed upon tobacco and alcohol products in addition to the
- -We recommend adopting strict restrictions on advertising to include:
 - A) A retail marijuana store may have not more than three signs, visible to the general public from the public right-of-way, that identify the retail marijuana store by its business name. A sign may be placed in the retail marijuana store's window or attached to the outside of the licensed premises.
 - B) An advertisement for marijuana or a marijuana product may not contain a statement or illustration that:
 - Is false or misleading;
 - Promotes excessive consumption;
 - Represents that the use of marijuana has curative or therapeutic effects (e.g. no untrue health-related statements);
 - Depicts a person under 25 years of age consuming marijuana;
 - Includes an object that is deemed "especially appealing to children" or designed to appeal to a person under 25 years of age, and that promotes consumption of marimana:
 - "Especially appealing to children" means a product, label, or advertisement that includes, but is not limited to, the following:
 - (A) The use of cartoons or toys; "Cartoon" means any drawing or other depiction of an object, person, animal, creature, or any similar caricature that also meets one or more of the other criterion below.
 - The use of comically exaggerated features;
 - b. The attribution of human characteristics to animals, plants or other objects, or the similar use of anthropomorphic technique;
 - The attribution of unnatural or extra-human abilities, such as imperviousness to pain or injury, X-ray vision, tunneling at very high speeds, or transformation;
 - Bubble-type or other cartoon-like or action font;
 - (B) The use of bright colors similar to those used on commercially available products intended for or that target youth or children;
 - (C) A design, brand, or name that resembles a non-cannabis consumer product of the type that is typically marketed to minors;
 - (D) Symbols or celebrities that are commonly used to market products to minors;
 - (E) Images of minors;
 - (F) Similarities to products or words that refer to products that are commonly associated with minors ormarketed to minors;
 - (G) The use of the word candy or candies.
 - 6) That promotes activity that is illegal under Connecticut law or that otherwise presents a significant risk to public health and safety. C) A retail marijuana store may not place an advertisement for marijuana or a marijuana product:
 - - (1) Within 1,000 feet of the perimeter of any child-centered facility, including a school, educational establishment, a youth center, a child care facility or other facility providing services to children, a playground or recreation center, a public park, a library, or a game areade that is open to persons under 25 years of age;
 (2) On or in a public transit vehicle or public transit shelter;

 - (3) On or in a publicly owned or operated property, including on a billboard on Interstates or highways;
 - (4) Within 1,000 feet of a substance abuse or treatment facility;
 - (5) On a campus for postsecondary education.
 - D) Advertisements must display license number of licensee and all marijuana advertising by a licensee must conform to these rules.
 - E) No free samples as part of promotion.
 - F) Advertisements on television and radio must adhere to the same restrictions currently in place for alcohol and tobacco.
 - G) In the interest of Public Health, advertising for the purpose of informing the public of the availability and characteristics of marijuana is allowed.

- -Marijuana that is dispensed under a state-authorized program is not a specific product with controlled dosages. The buyer has no way of knowing the strength or purity of the product, as cannabis lacks the quality control of FDA-approved medicines. While this cannot be entirely corrected through the measures proposed below, mandatory labeling will help better control the strength and purity.
- -The requirement of stringent labeling of marijuana products could lead to a more controlled product with less contaminants or additives, better controlled concentrations, eliminate glass beads (used to increase weight), and other such practices. Therefore, we recommend adopting stringent packaging and labeling restrictions.

-We recommend restrictions on packaging to include:

- A) Containers or packaging for marijuana items must protect the item from contamination, including, but not limited to, mold or other microbial growth.
- B) Packaging must not be made in a way that is designed in any manner that is especially appealing to children or other persons under 25 of age.

We specifically recommend prohibiting packaging that is "especially appealing to children" as defined in the Section 6. C) The packaging must be designed or constructed to be significantly difficult for children under 5 years of age to open, but not normally difficult for

adults to use properly.

-We specifically recommend containers that are plastic four mil or greater in thickness and be heat sealed with no easy-open tab, dimple, corner, or flap as to make it difficult for a child to open and as a tamperproof measure.

D) If the marijuana product contains multiple servings, be designed so that the marijuana product itself has markings or demarcations clearly delineating each serving of the product; for liquid marijuana products with multiple servings, the packaging must indicate the number and size of individual servings. -If more than one serving is present, the package must be re-sealable and continually child-resistant.

-If there is more than one serving of marijuana-infused solid edible products in the package, each serving must be packaged individually in child-resistant packaging.

E) Packaging may not contain any untruthful or misleading content.

-We recommend restrictions on labeling to include:

- A) Must contain the following information:
 - (1) The net weight;
 - (2) The expiration date;
 - (3) The potency (total estimated amount) of at least the Retail Marijuana Concentrate's Tetrahydrocannabinol (THC) and Cannabidiol (CBD) shall be included on a label that is affixed to the package. The potency shall be expressed in milligrams (mg) for each cannabinoid

 - -Total THC content should be determined by a calculation based upon both the THC and THCA content.

 -An example may include: "The serving size of active THC in this product is X mg, this product contains X servings of marijuana, and the total amount of active THC in this product is X mg and the total amount of active CBD in this product is X mg."
 - (4) A complete list of solvents and chemicals used to create the Retail Marijuana Concentrate. This includes:
 - (A) A complete list of ingredients;
 - (B) A complete list of all nonorganic pesticides, fungicides, and herbicides used during the cultivation of the Retail Marijuana;
 - (C) Any other chemicals or compounds used during cultivation, production, or processing including those added to the concentrate or extract:
 - (D) If solvents were used to create the concentrate or extract, a statement that discloses the type of extraction method, including any solvents or gases used to create the concentrate or extract.
- B) Must contain the following disclaimers and warnings:
 - (1)"Contains Marijuana."
 - (2)"Marijuana has intoxicating effects and may be habit forming and addictive."

 - (3)"The intoxicating effects of this product may be delayed by two or more hours."

 (4)"Marijuana impairs concentration, coordination, and judgment. Do not operate a vehicle or machinery under its influence."
 - (5)"There may be health risks associated with the consumption of marijuana."
 - (6)"For use only by adults twenty- five and older. Keep out of the reach of children."
 - (7)"In the elderly, there may be a risk of falls."
 - (8)"There may be interactions with medications. Please check with your doctor before consuming."
 - (9)"There may be additional health risks associated with the

consumption of this product for women who are pregnant,

breastfeeding, or planning on becoming pregnant. Marijuana should not be used by women who are pregnant or breast feeding." (10) "This product was produced without regulatory oversight for health, safety, or efficacy."

- C) A Retail Marijuana Cultivation Facility or Retail Marijuana Products Manufacturing Facility must ensure the following information is affixed to every package holding the Retail Marijuana Concentrate:
 - (1) The license number(s) of the Retail Marijuana Cultivation Facility(-ics) where the Retail Marijuana used to produce the Retail Marijuana Concentrate was grown;
 - (2) The license number of the Retail Marijuana Cultivation Facility or Retail Marijuana Products Manufacturing Facility that produced the Retail Marijuana Concentrate;
 - (3) The production batch number assigned to the Retail Marijuana Concentrate contained within the package.
- D) Retail Marijuana Stores (if different than cultivation or manufacturing facility) must affix a label to each package of marijuana or marijuana product that identifies the Retail Marijuana Store selling the marijuana product by name or distinctive logo, as well as the marijuana establishment license number. -Both packaging and labeling must follow all rules outlined in Section 6 (e.g. no false misleading, etc).
- 8) Restrictions on Dispensaries and Retail Marijuana Stores:
 - -We recommend the following regarding dispensaries and Retail Marijuana Stores:
 - A) Dispensaries and Retail Marijuana Stores must apply and be approved for a license to operate a dispensary.
 - (1) Must obtain state licenses from licensing authority to be recognized as either: a retailer, distributor, or microbusiness. This application must be made to a specialized board (see Section 4) and approval is required prior to any commercial transaction.
 - (2) Dispensaries must be issued a registration and maintain their registration with the specialized board (see Section 4) in order to continue
 - B) Dispensaries and Retail Marijuana Stores may not use giveaway coupons as promotional materials, or conduct promotional activities such as games or competitions to encourage the sale of marijuana or marijuana products. No free samples as part of a promotion.
 - C) Dispensaries and Retail Marijuana Stores cannot be located within 1000 feet of:
 - (1) Schools, educational establishments, youth centers, child care facilities or other facilities providing services to children, playgrounds or recreation centers, public parks, fibraries, or game arcades that are open to persons under 25 years of age;
 - (2) Hospitals or medical facility(-ies);
 - (3) Mental health treatment facility(-ies);
 - (4) Substance abuse or treatment facility(-ies);
 - (5) A campus for postsecondary education.
 - C) Dispensaries and Retail Marijuana Stores must require a government-issued form of identification to verify age.
 - D) Dispensaries and Retail Marijuana Stores cannot allow use of cannabis on the premises if anyone less than 25 years old is able to access the area. Cannabis consumption must not be visible from any public place.
 - E) Dispensaries and Retail Marijuana Stores cannot sell alcohol or tobacco on the premises.
 - F) Dispensaries and Retail Marijuana Stores must display signs educating customers on laws governing transporting cannabis in a vehicle or driving under the influence (see Section 9)
 - -This includes Federal regulations around interstate commerce and transportation of marijuana.
 - G) Dispensaries and Retail Marijuana Stores must keep records of transactions as outlined in Section 5.

- H) Dispensaries and Retail Marijuana Stores must be required to have video surveillance and security alarm systems to significantly decrease or prevent diversion, theft, and illegal sales.
 - -We recommend security, video, and alarm requirements at all marijuana establishments including cultivation, processing, packaging, and retail sales
- I) Restriction on the timing of sales. Could be accomplished by mirroring existing policies for the sale of alcohol.
- -We recommend that Dispensaries and Retail Marijuana Stores must be physical locations and cannot have a delivery option.
- -Additionally, Dispensaries and Retail Marijuana Stores must obey all recommendations as laid out in Sections 6 and 7.

9) Regulation on driving

- -We recommend that operation, navigation, or physical control of a motor vehicle, watercraft, aircraft, snowmobile, or off-road recreational vehicle while under the influence of marijuana or within 1 hour of consuming a marijuana product if used by inhalation, or within 3 hours of using an edible product be deemed illegal.
 - We recommend that a combination of: 1) clinical signs of marijuana intoxication and 2) marijuana blood levels of greater than 5ng/mL be used to define impaired driving.
 - -To help best facilitate this, we recommend training law enforcement to better recognize clinical signs of intoxication to aid in identification of drivers operating under the influence of cannabis (DUIC).
 - -Other states have adopted policies imposing monetary fines for possession of a receptacle containing cannabis or cannabis product that has been opened or has a broken seal while operating a motor vehicle. We recommend adopting similar deterrent policies.

10) Possession limits

- -Possession of unregulated quantities of marijuana can itself lead to dangerous and unsafe behaviors, as well as potentially encouraging higher levels of use. Therefore, regulating possession limits is a public health concern.
- -Possession limits in other states vary from 1 to 2.5 ounces (oz) while in public spaces; the majority adopted 1oz as the standard.
- -We recommend adopting the more restrictive allowance of no more than 1 oz.
- -We also recommend that the law prohibit consumption of marijuana in public places.

11) Mandatory monitoring of contaminants

-We recommend prohibiting the sale of marijuana products without batches having been tested and the issuance of a certificate of analysis. Thereafter, we recommend mandatory testing of samples of all marijuana harvests to ensure quality (reports sent to the board- see Section 4) and random testing of marijuana products to verify quality and look for contaminants.

-Samples should be monitored for solvents, heavy metals, chemicals, and microbial (bacterial and fungal) contaminants. This includes, but is not limited to, nonorganic pesticides, fungicides, and herbicides used during the cultivation; solvents used to create the concentrate or extract, including any solvents or gases used to create the concentrate or extract; any other chemicals or compounds used to produce or that were added to the concentrate or extract; heavy metals; added objects (e.g. glass beads, etc); as well as bacterial and fungal loads.

-Below are examples of Alaska's monitoring paradigm. In addition to these limits, Alaska requires "a statement listing any contaminants for which the product was tested including: (A) molds, mildew, and filth; (B) herbicides, pesticides, and fungicides; and (C) harmful chemicals.

Microorganism

- -Shiga-toxin producing Escherichia coli (STEC)-bacteria
- -Salmonella species-bacteria
- -Aspergillus fumigatus, Aspergillus flavus, Aspergillus niger-fungus

Substance

butanes

heptanes

benzene

toluene

Total xylenes (meta-eylenes, para-xylenes, or ortho-xylenes)

Acceptable Limits Per Gram

Less than 1 colony forming unit (CFU/g) Less than 1 colony forming unit (CFU/g)

Less than I colony forming unit (CFU/g)

Acceptable Limits Per Gram

Less than 800 parts per million (PPM)

Less than 500 parts per million (PPM) Less than 1 part per million (PPM)

Less than 1 part per million (PPM)

Less than 10 parts per million (PPM)

Less than 1 part per million (PPM)

Product to be Tested

flower; retail marijuana products; water-and food-based concentrates

Product to be Tested

Solvent-based concentrates

-We recommend imposing both criminal and civil (losing registration or licenses, fines) penalties for failure to adhere to guidelines above governing chemicals, solvents, heavy metals, and microbial contaminants.

12) Restrictions on formulations and types of products sold

- -As mentioned in Section 7, we recommend against the use of candy(-ies) formulations given the risk of accidental ingestion by children.
- -We recommend the state regulate specific cannabinoids (both natural and synthetic) based on their liability for abuse and potential for mental health and functional impairments.

-Some cannabinoids, like THC, have higher abuse liability and are associated with higher cognitive impairments. Compared to THC, many synthetic cannabinoids like JWH-018 have even higher abuse liability, as well as anxiogenic and psychotic effects. Others, like CBD, have lower abuse potential and may have anxiolytic and antipsychotic effects. Using this rational, the state could regulate specific cannabinoids differentially based upon risk. This is best done through a Board (see Section 4) that regularly reviews the most recent data on the various cannabinoids.

-We recommend the State consider differential treatment of marijuana products based on CBD to THC ratios.

-The State could incentivize the production and consumption of less harmful marijuana products by taxing marijuana products based on types and concentrations of cannabinoids. For example, CBD is thought to have less negative effects than THC. Studies from the UK have demonstrated a decreased risk with use of products higher in CBD compared to THC (e.g. higher CBD to THC ratio). Therefore, the state could incentivize (such as through a discount on taxation rate) for products with higher CBD to THC ratios. In contrast, taxation could increase as the concentration of THC and other more harmful cannabinoids increases. The more harmful synthetic cannabinoids should be made illegal (see note above).

13) Other recommendations

Medical Marijuana

-We recommend re-evaluating the status of and policies regarding medical marijuana. The process of legalizing recreational marijuana can be an opportunity to reevaluate current approved conditions, restrictions, and regulations for medical marijuana. Much of the public pressure to loosen restriction on medical marijuana comes from people and groups that are in favor of legalizing recreational marijuana-many of whom use medical marijuana policies as a means to use recreationally. By legalizing marijuana, public pressure against changes or restrictions on medical marijuana policies could be reduced, allowing policy makers to make medical marijuana a more effective, science based, and safer treatment.

Cultivation Restrictions:

- -Restriction on personal possession of marijuana plants varies across state laws as well with the average recommendation of: no more than 6 plants per household, only 3 of which can be mature or flowering. Only the state of Washington does not allow for personal plant cultivation.
- -We recommend adopting a policy similar to that of other states: 6 plants per household, no more than 3 of which can be in a mature or flowering stage at any given time, and which must be used exclusively for personal use.

-Of note, some states allow 6 plants per individual, which has effectively allowed for the development of grow houses. For this reason, we recommend imposing a household limit.

Controlled substance monitoring:

-We recommend continued reporting of medical marijuana to controlled substance monitoring agency.